

# Site Reassessment



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## SIGNATURE PAGE

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**CERCLA  
Site Reassessment**

**for:**

**South California Chemical  
Union, Illinois  
ILD 059483081**

**PREPARED BY:  
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY  
BUREAU OF LAND  
DIVISION OF REMEDIATION MANAGEMENT  
OFFICE OF SITE EVALUATION**

**May 16th, 2016**

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## **Section 1.0 Introduction**

On January 7th, 2015, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Site Reassessment (SR) at the South California Chemical property (Southern California Chemical), McHenry County, Illinois.

The Site Reassessment is performed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) commonly known as Superfund. Current U.S. EPA policy stipulates that a Site Reassessment be conducted to determine the current status of the South California Chemical site. The Site Reassessment will consist of an evaluation of recent information to determine if further Superfund investigations are warranted. The Site Reassessment will supplement previous work, and is not intended to replace previous CERCLA assessments.

The Site Reassessment is designed to evaluate recent information that will help determine if the site qualifies for possible inclusion on the National Priorities List (NPL), or should receive a No Further Remedial Action Planned (NFRAP) designation. At the conclusion of the reassessment Illinois EPA will recommend that the site be given a NFRAP designation, receive further Superfund investigations, or referred to another state or federal cleanup program.

The South California Chemical site was initially placed into CERCLIS (which is now known as the Superfund Enterprise Management System or SEMS) data base on March 14<sup>th</sup>, 1989. A Preliminary Assessment (PA) was completed on February 28<sup>th</sup>, 1990. An Integrated Site Assessment (SI) was completed on April 3<sup>rd</sup>, 1995. The Site Team Evaluation Prioritization (STEP) which is similar in scope to an Expanded Site Inspection (ESI) was completed on September 16, 1999.

This Site Reassessment Report will describe current site conditions and illustrate how the South California Chemical property has changed since the last CERCLA investigation of 1999. This report will contain a summary of existing information that will include site history, current site conditions, evaluate past analytical data, and evaluate past remedial activities. The Site Reassessment will also support emergency response or time-critical removal activities if they are warranted.

## **Section 2.0 Site Description and History**

### **2.1 Site Description**

The South California Chemical site is located in a mixed residential, commercial, and industrial area inside the southeast boundaries of the City of Union, at 17415 Jefferson Street, McHenry County, Illinois (see Figure 1 and Figure 2). The property is bordered on the north by Jefferson Street, on the east by private businesses, on the west by Solarecrete Corporation, and on the south by the Chicago and North Western Railroad tracks. The site occupies a total of about 7 acres of land in the Northwest  $\frac{1}{4}$  of the Southeast  $\frac{1}{4}$  of Section 4, Township 43 North, and Range 6 East. The site is located at 42.23253 degrees latitude and -88.53596 degrees longitude.

The South California Chemical site originally consisted of three parcels of property (see Figure 3). Parcels one and two (#17-04-400-17 and #17-04-400-18) consists of the inactive manufacturing plant (Southern California Chemical Company) located at 17415 Jefferson Street. Parcels one and two contain approximately 2.5 acres of land. The property is currently owned by Phibro-Tech, Inc. of Ft. Lee, New Jersey. Phibro-Tech, Inc. has parcels one and two currently enrolled in the Site Remediation Program (SRP) at the Illinois EPA. The third parcel (#17-04-400-024) consists of a wooded dump area approximately 4.5 acres in area and is adjacent to the east side of parcels one and two. According to the tax records of McHenry County, the third parcel is privately owned.

The site topography of Parcels 1 and 2 is relatively flat. These two parcels formerly contained the four buildings and well pump house used by the Southern California Chemical Company. During the summer of 2002, the remaining buildings and structures on these parcels were demolished and removed. The concrete foundations of the former site still exist. A rail spur is also still located on the southern portion of the site. Site access to Parcels 1 and 2 are currently restricted by a security fence that surrounds most of the property.

The site topography of Parcel 3 is also relatively flat. This parcel was specifically excluded from the purchase agreement of 1984, when Phibro-Tech purchased Parcels 1 and 2 of the Southern California Chemical Company facility. Parcel 3 was formerly part of the Southern California Chemical Company facility, but is currently a fenced, densely wooded area with a pond covering a little bit less than  $\frac{1}{2}$  acre, on the southern portion of the parcel. According to the

STEP investigation which was completed in 1999, Parcel 3 was the location of a dump area for the Southern California Chemical Company facility.

Census data has been compiled and formatted for use in GIS applications by ESRI, a GIS software company. ESRI used demographic data from the “Census 2000 Summary File” represented by Census Block Centroids to generate data that can be overlain onto maps for analysis (ESRI). In order to calculate population in areas surrounding the site, the ESRI census data was overlain onto a map from the region and queried based on distance from the site’s boundary. Population data based on GIS analysis for areas surrounding the site is shown below. A map illustrating the site with 4-mile distance rings can be found as an attachment to this report.

#### **Population rings within four miles of the site**

<b>Distance (mi)</b>	<b>Population</b>
On-Site	0
0 - ¼ mile	103
¼ mile - ½ mile	276
½ mile - 1 mile	257
1 mile - 2 miles	298
2 miles - 3 miles	746
3 miles - 4 miles	5,518

## **2.2 Site History**

The South California Chemical site was leased by the Southern California Chemical Company in 1970 and later purchased by the same company in 1982. Although the site is officially listed as “South California Chemical” for CERCLA investigations, the Southern California Chemical Company is the actual name of the company that is believed to have contributed to the bulk of the contamination found at the site.

Prior to Southern California Chemical Company leasing the South California Chemical property, the site was the previous location of several different types of plants. These plants included a grain plant, a milk plant, and possibly a shingle manufacturing plant according to some of the records. The original manufacturing facility consisted of four buildings of approximately 24,000 square feet.



Activities conducted by Southern California Chemical Company involved the manufacture of various inorganic chemical including copper sulfate pentahydrate, copper oxide, proprietary and patented continuous ammonia etchants as well as the recycling and refining of spent circuit board etchant which was resold to the printed circuit board operators after purification. Southern California Chemical Company mainly manufactured inorganic chemical products for the aerospace and electronics, but also sold by-product of their copper oxide residuals to the agricultural and wood preserving industries.

Southern California Chemical Company manufactured solder strippers, brighteners, conditioners, and etchants. Feedstocks for the etchant recycling process consisted of a portion of the spent etchant being placed in a reaction vessel charged with sodium hydroxide, which resulted in a reaction that formed ammonia and a suspension of cupric oxide. The ammonia was scrubbed with hydrogen chloride which resulted in a solution of ammonium chloride. The ammonium chloride was placed along with the other portion of the spent etchant, into another reactor vessel where anhydrous ammonia and air were added. This process resulted in a refined printed circuit board etchant which was sold back to the circuit board manufacturers.

The company had a number of hazardous waste storage containers. These included six aboveground storage tanks (located on Parcels 1 and 2) ranging from six to ten thousand gallon capacity and potential storage capacity for up to twelve hundred fifty-five gallon drums. Additionally, the land east of the manufacturing area (Parcel 3) had exposed fragments of buried circuit boards which were deposited over the years that the facility was in operation.

In 1984, Parcels 1 and 2 of the Southern California Chemical Company facility were purchased by Phibro-Tech. In the purchase agreement, Phibro-Tech specifically stated that Parcel 3 was excluded from this purchase. Following the purchase of Parcels 1 and 2, Phibro-Tech operated their portion of the South Chemical Site as an inorganic chemical manufacturing plant until 1988. In 1988, Phibro-Tech ceased production and the process equipment was subsequently dismantled.

### **2.3 CERCLA Investigative History**

In 1979, the attorney general's office prosecuted Southern California Chemical Company for a chemical spill at its site. Southern California Chemical was forced to clean up an adjacent farm field and remove contaminated soil. Placement of S. California Chemical in the CERCLIS

database in March of 1989, was a result of a request for discovery action initiated by the Illinois EPA. This action was taken because of chloride contamination found in a Village of Union Well, (b) (9). The chlorides found in the village well were similar in structure to the chemicals in the 1979 spill at Southern California Chemical.

The facility received its initial CERCLA evaluation in the form of a Preliminary Assessment (PA) report by the Illinois EPA, in February of 1990. The 1990 report indicated that some residents complained that some evaporation basins containing copper sulfate sludge located on the Southern California Chemical Site had leaked and were causing trees north of the facility to die because of excessive copper intake. No leaks were ever detected in the basins, but high copper levels were found in the Box Elder trees and soil across the street and in a schoolyard near the plant. Southern California Chemical did resod a portion of the school yard. The basins were demolished and backfilled with soil/sand in 1988 after being idle for nearly 5 years. The 1990 PA also noted that numerous spills and ammonia releases inside the plant have prompted complaints by area residents. During various inspections at the site, poor ratings were continuously given due to the facility due to the “sloppy housekeeping” practices at the site. At the completion of the PA, it was determined that conditions at South California Chemical posed enough of an environmental threat to move to the next step in the CERCLA process.

In May of 1994, the Illinois EPA conducted a CERCLA Integrated Site Assessment (SI) which was completed on April 3<sup>rd</sup>, 1995. During the investigation, ten soil samples and three groundwater samples were collected. One of the groundwater samples was collected at the Village of Union well located (b) (9). The other two groundwater samples were collected from monitoring wells located on the Southern California Chemical property. None of the groundwater samples collected detected any chemical contaminants of concern above Removal Management Levels (RMLs). For the soil samples collected during the SI, most of the samples were collected in Parcel 3 (the dump area) with a few samples collected off the site. Two of the samples exceeded the RML for copper. At the completion of the SI, South California Chemical was determined to pose enough of an environmental threat to move to the next step in the CERCLA process and receive more thorough investigations.

In mid-April 1998, the Illinois EPA performed the sampling portion of the Site Team Evaluation Prioritization (STEP) investigation. The STEP investigation is equivalent to the

Expanded Site Inspection (ESI) in the CERCLA program. During the investigation, ten soil samples and seven groundwater samples were collected. None of the RMLs were exceeded for that water samples. For the soil samples, several RMLs were exceeded. These included Copper, Lead, and several Polynuclear Aromatic Hydrocarbons (PAHs). After the completion of the STEP report on September 16, 1999, it was determined that South California Chemical had enough contaminated soil to either enter Illinois EPA's Site Remediation Program or to go through additional CERCLA investigations.

### **Section 3.0 Other Cleanup Authorities and Activities**

The Southern California Chemical Company was regulated under the Resource Conservation and Recovery Act (RCRA) as a Small Quantity Generator and is in the process of undergoing RCRA closure of the area used for manufacturing (Parcels 1 and 2). This closure process does not involve the dump area to the east (Parcel 3).

The facility was issued permit number 111090AAG by the Illinois EPA's Division of Air Pollution Control on March 16, 1983 for the operation of one scrubber used in the ferric chloride process. The Illinois EPA Division of Land Pollution Control issued the company permit number 1981-45-OP in 1981 to operate a waste management site to recover spent etchant. The Illinois EPA Division of Water Pollution Control issued permit 1984-EB-2998 on February 6, 1984 for a concentration, precipitation, and pH adjustment industrial treatment works to treat 11,250 GPD DAF of copper oxide production and wash wastewater with force main discharge to the Kishwaukee River but the treatment works was never constructed.

Currently, available information suggests that the site is not subject to the regulations of other pertinent statutes including the Atomic Energy Act (AEA), the Uranium Mill Tailing Radiation Control Act (UMTRA), or the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

### 3.1 Parcels 1 and 2

In February 2005, Phibro-Tech enrolled Parcels 1 and 2 in the Site Remediation Program (SRP) at the Illinois EPA. The goal of the SRP program is to issue a No Further Remediation (NFR) letter to the properties enrolled in the program. The Illinois EPA is authorized to issue this letter to applicants who have successfully demonstrated, through proper investigation and, when warranted, remedial action, that environmental conditions at the remediation site do not present a significant risk to human health or the environment. Phibro-Tech is currently working their way through this program with Parcels 1 and 2 in the hopes of obtaining an NFR for the site.

In August 2008, ENVIRON International Corporation (one of the various consultants hired by Phibro-Tech), wrote that “several phases of soil and groundwater investigations have been conducted by various consultants on behalf of Phibro-Tech. The results of these investigations have been analyzed and described in various reports submitted to the IEPA.” ENVIRON International Corporation then went on to list the following sixteen reports (which are located in the Illinois EPA’s file system):

- “*Interim Report for Hydrogeologic Engineering Investigation*,” dated November 29, 1988.
- “*Draft Report Phase III – Hydrogeologic Engineering Investigation*,” dated September 9, 1990.
- “*Information Submittal*,” dated September 28, 1990.
- “*Phase IV – Hydrogeologic Engineering Investigation*,” dated March 20, 1991.
- “*Report of Investigation, Phase I Soil Sampling Investigation*,” dated March 20, 1991.
- “*Proposed Sampling Program, RCRA Closure Project*,” dated August 30, 1991.
- “*Phase II Soil Investigation Report, RCRA Closure Project*,” dated March 13, 1992.
- “*Summer 1992 Field Inspection Report*,” dated September 28, 1992.
- “*First Quarter – 1993 Ground Water Monitoring Report*,” dated July 16, 1993.
- “*Closure and Post-Closure Care Plan*,” dated August 5, 1993.
- “*Request for a Site-Specific Determination of Clean Closure*,” dated September 1994.
- “*Hydrogeologic Investigation Work Plan*,” dated September 1994.
- “*Additional Risk Characterization Work Plan*,” dated December 1996.

- “*Additional Soil Characterization Work Plan, Revision 1,*” dated December 1997.
- “*Remedial Action Plan,*” dated August 2003.
- “*Site Investigation Work Plan,*” dated May 15, 2005.

### **3.1 Parcel 3**

The Site Team Evaluation Prioritization was completed on September 16, 1999. That investigation indicated the presence of soil and groundwater contamination on Parcel 3. Two Removal Management Levels (RMLs) were exceeded in the soil for Parcel 3. Benzo(a)pyrene was detected at 32 mg/kg (RML = 29 mg/kg) in sample X102 (soil sample collected at the northwest portion of the dump area) and lead was detected at 1240 mg/kg (RML = 800 mg/kg) in sample X103 (soil sample collected at the southwest portion of the dump area). Furthermore, there are no records that Parcel 3, which was the dump area for the Southern California Chemical Company manufacturing plant, has undergone any remediation activities or investigations since 1999. The parcel is vegetated and there are still circuit boards present on the property. No records can be found that indicate that any of the contamination found on Parcel 3 has been removed. It does not appear that any other governing authority has tried to identify or remove the source of the chemical contamination found on Parcel 3.

## **Section 4.0 Summary and Conclusion**

During the previous CERCLA investigations, it was determined that samples collected from the South California Chemical site revealed the presence of contaminants at or near the surface of the property and in the groundwater. This created possible exposure and migration pathways for soil exposure and groundwater ingestion for the nearby business and nearby residents of the South California Site. Approximately 636 people live within a one-mile radius of the site at which contamination above background had been documented. The closest village well is located [REDACTED]. This well is one of several wells in the village that helps to supply the Village of Union residents with water. No contaminants have been found in the well.

In summary, chemical contamination likely still exists on site, especially in Parcel 3; and there is still the potential for this contamination to migrate off-site. Based on the nature of the contamination that was found during the previous investigations, it is likely that most of the contamination was from the companies that manufactured inorganic chemical products at the property. No releases to air have been documented, but the contaminants near the surface create the potential for windblown particulates to carry contaminants away from the site. One of the concerns for the site is the soil contamination. Although this contamination pathway has been reduced greatly through the actions of Phibro-Tech on Parcels 1 and 2, there is no record of any investigations or remediation actions on Parcel 3. However, there is fencing that restricts access to all three parcels.

## Section 5.0 References

ENVIRON International Corporation. 2008. "Site Investigation Report Phibro-Tech, Inc. Facility 17415 Jefferson Street Union, Illinois ." August.

Illinois Environmental Protection Agency. 1990. "CERCLA Preliminary Inspection Report." February 20<sup>th</sup>.

Illinois Environmental Protection Agency. 1999. "CERCLA Site Team Evaluation Prioritization Report." September 16<sup>th</sup>.

United States Department of Commerce, Economics and Statistics Administration, Bureau of Census. Census 2000: Summary File 1. In: ESRI Data & Maps 2006 Data Update, <http://www.esri.com/data/data-maps/overview.html>.

U.S. EPA. 1988 "Superfund Exposure Assessment Manual," EPA 540/1-88/001, April

U.S. EPA web site:

<http://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0505862>

Figure 1  
Site Location Map

South California Chemical  
McHenryl County  
Union, Illinois





Figure-2  
Site Topographical Map

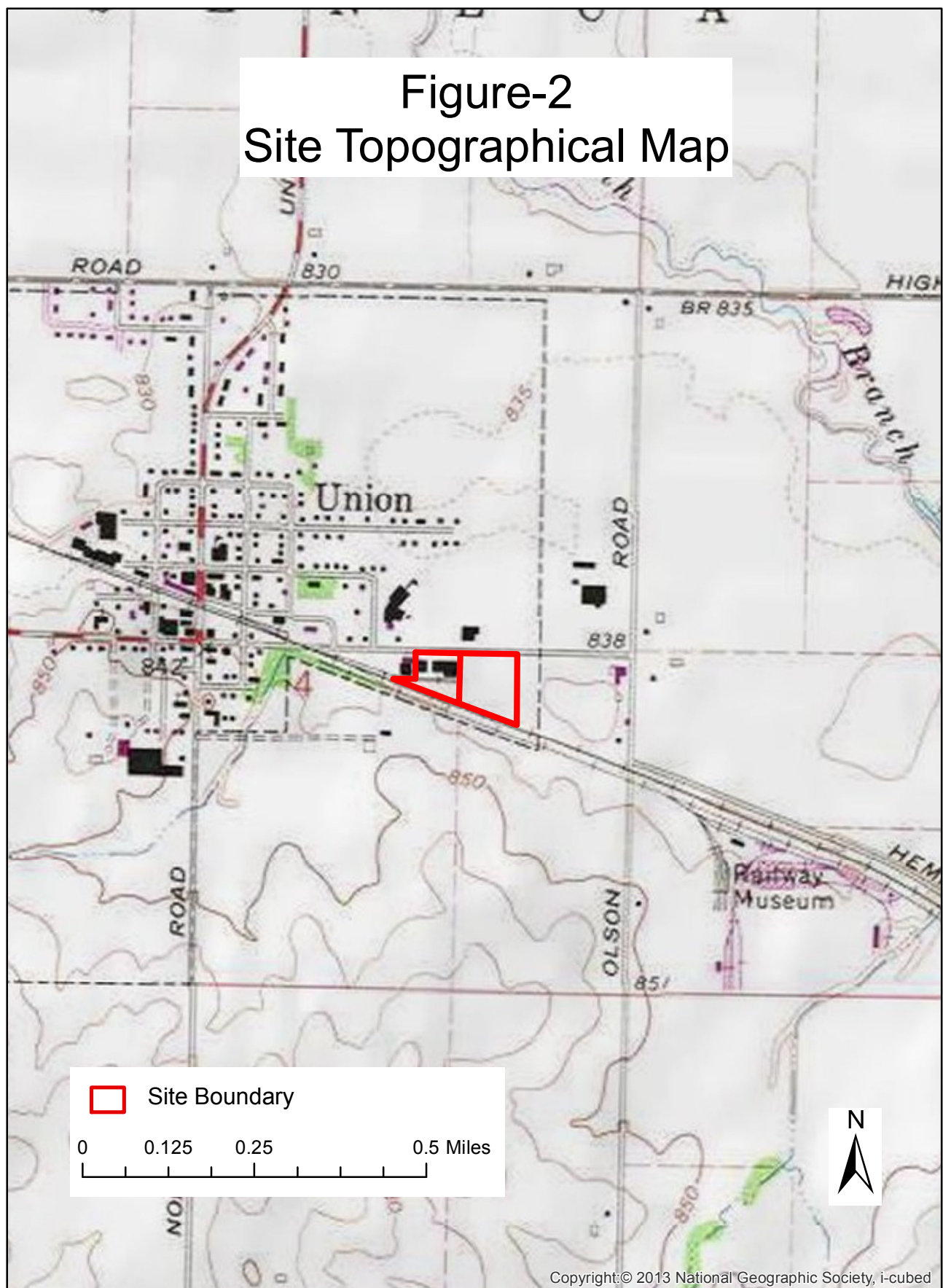
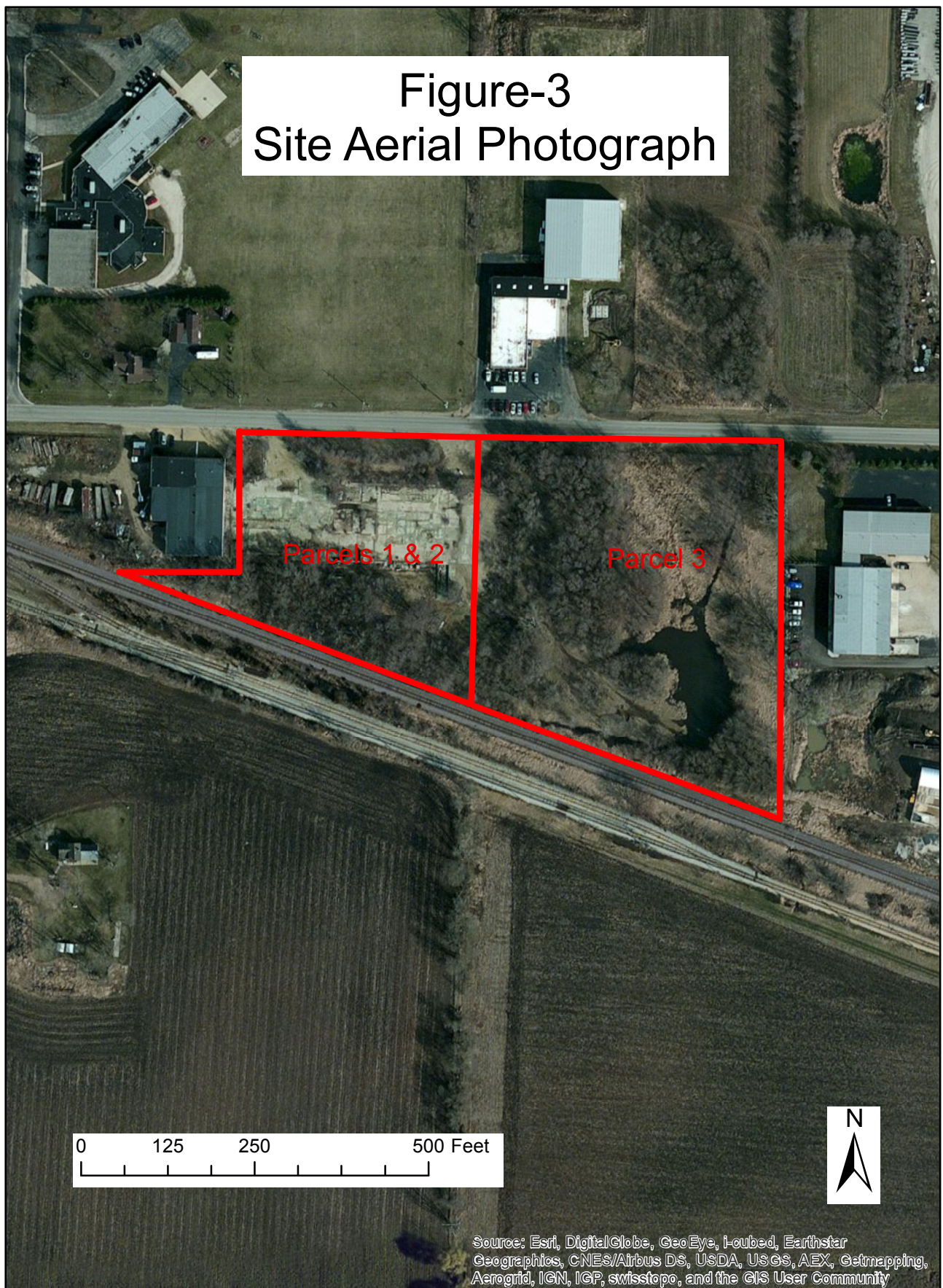




Figure-3  
Site Aerial Photograph



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar  
Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping,  
Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



# Figure-4 4-Mile Radius Map

